REMARKS

Applicants appreciate the thorough examination of the present application as evidenced by the final Office Action dated June 19, 2006 (hereinafter, the "Final Action"). Claims 1-3, 5-13, 31 and 32 are pending in the present application, and Applicants respectfully submit that these claims are patentable in view of the claim amendments and remarks presented herein.

Should there be any issues preventing the allowance of the application upon the Examiner's consideration of the present Amendment, Applicants respectfully request that the Examiner contact the Applicants' representative noted below in order to discuss the outstanding issues.

I. New Claim 31

Under the Enablement rejection on page 6 of the Final Action, the Examiner states, "while being enabling for a method of use of a recombinant *Bacillus subtilis* having at least one heterologous *kerA* gene of *Bacillus licheniformis* inserted into *B. subtilis*' chromosome, [the specification] does not reasonably provide enablement for *B. subtilis* or *B. licheniformis* integrant having any heterologous *kerA* gene inserted into its chromosome."

Applicants have added new Claim 31 directed to a method of making a keratinase including culturing a recombinant *Bacillus* in a medium, said recombinant *Bacillus* selected from the group consisting of *Bacillus licheniformis* and *Bacillus subtilis* and having at least one *Bacillus licheniformis kerA* coding sequence inserted into the chromosome thereof, wherein said medium comprises not more than 3% keratinase protein substrate. Claim 31 incorporates the recitations of Claim 2, which claim is not subject to a rejection under 35 U.S.C. §103. Accordingly, Applicants respectfully submit that Claim 31 does not present any new matter and is patentable over the cited art, and Applicants respectfully request entry and allowance thereof.

II. Objections

The Office Action indicates that the specification is objected to because "the chapter "Gene Cloning, Transformation and Integration in *B. Licheniformis* DB104" on page 5 refers to *B. subtilis* DB104, transformed with vectors listed in Table 2," and "Applicants suggest

that *B. subtilis* was transformed to contain the plasmid extrachromosomally and not integrated." Office Action, page 2. The Office Action further indicates that Claim 1 is objected to because enzymes are not collected from the medium, but isolated therefrom. In response, Applicants have amended the specification as noted above, and Applicants have amended Claim 1 to recite the language suggested by the Examiner. Accordingly, Applicants respectfully submit that the objections to the specification and the objection to Claim 1 have been addressed, and Applicants respectfully request that such objections be withdrawn.

III. Claim Rejections Under 35 U.S.C. §112, Second Paragraph

Claim 2 stands rejected under 35 U.S.C. §112, second paragraph, on the basis that Claim 2 is confusing in the recitation of the word "substrate." Office Action, page 3. Applicants have amended Claim 2 to recite "keratinase protein substrate."

Claims 3 stands rejected under 35 U.S.C. §112, second paragraph, and the Office Action indicates that a qualitative and quantitative description of "soy" is proper. *See* Office Action, page 4. Claim 3 has been amended to recite "soy flour." *See* Present Application, page 11 indicating that NUTRISOY® soy flour was used in the production culture medium.

Claim 11 stands rejected under 35 U.S.C. §112, second paragraph, on the basis that the claim language is unclear. *See* Office Action, page 4. Applicants have amended Claim 11 to delete the recitation "recombinant."

At least in view of the foregoing, Applicants respectfully submit that the claim rejections under 35 U.S.C. §112, second paragraph, have been addressed, and Applicants respectfully request that these claim rejections be withdrawn.

IV. Claim Rejections Under 35 U.S.C. §112, First Paragraph, Written Description

In interpreting the written description requirement, the USPTO has clearly stated that "[i]nformation which is well known in the art need not be described in detail in the specification." *Guidelines for Examination of Patent Applications Under the 35 USC 112 ¶1, "Written Description" Requirement,* Federal Register 66, p. 1105 col. 3 (Jan. 5, 2001) (hereinafter, "Written Description guidelines")(*relying on Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d at 1367, 1379-80, 231 USPQ 81, 90 (Fed. Cir. 1986). Moreover, a patent specification "'need not teach, and ***preferably omits***, what is well known in the art.'"

Written Description guidelines p. 1103 col. 2 (*relying on Spectra-Physics, Inc.* v. *Coherent, Inc.* 827 F.2d 1524, 1534, 3 USPQ2d 1737, 1743 (Fed. Cir. 1987); *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F2d at 1384, 231 USPQ at 94) (emphasis added).

More recently, the USPTO has acknowledged that "credit for what is already known" has become a re-emerging theme in recent Federal Circuit decisions. *Recent Biotech Case Law* presented by Stephen Walsh, Ph.D., J.D., Associate Solicitor, at the Biotech/Chem/Pharm Customer Partnership Meeting on November 10, 2005.

A. Claims 1-3 and 5-13

The rejection of Claims 1-3 and 5-13 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement is maintained. *See* Final Action, page 4. More specifically, the Final Action states that the claims are "directed to integrants having integrated any *kerA* gene which is heterologous for *B. licheniformis* or *B. subtilis*, i.e., to a large genus of integrants comprising a large genus of *kerA* genes. The only species of *kerA* genus, i.e., *kerA* of *B. licheniformis* does not provide an identifying characteristics of all *kerA* genes from any organism or man-made." Final Action, page 5. Applicants respectfully disagree.

Claims 1, 9and 10 have been amended to recite a "*kerA* gene." Applicants respectfully submit that one skilled in the art would have knowledge of a "*kerA* gene" as such is known in the art and has been cloned. It is the coding sequence of **known** *kerA* genes that is inserted into the chromosome of the *Bacillus* as recited in the pending claims. Thus, one skilled in the art would recognize that Applicants were in possession of the invention at the time of filing the present application. Accordingly, Claims 1-3 and 5-13 comply with the written description requirement.

B. Claim 6

The Final Action asserts that Claim 6 is rejected because "Applicants fail to teach *kerA* gene of *Bacillus subtilis*. This is a complete lack of written description." Final Action, page 5. As Applicants have previously noted, the present application **specifically states** that "the *kerA* coding segment may be a *Bacillus licheniformis* or ***Bacillus subtilis kerA*** coding segment." Present Application, page 2, third full paragraph (emphasis added). Thus, Claim 6 complies with the written description requirement.

C. Claim 12

The Final Action asserts that "[t]he genus of constitutive promoters is not sufficiently described in the disclosure because providing the P43 promoter does not provide the structural characteristics of the whole genus of the constitutive promoters." Final Action, page 6. Applicants again note that the *kerA* gene is known. As such, one of skill in the art would appreciate constitutive promoters that could be operatively associated with the **known** *kerA* gene.

Accordingly, at least in view of the foregoing, Applicants respectfully submit that the claim rejections under 35 U.S.C. §112, first paragraph, as lacking written description, have been addressed, and Applicants respectfully request withdrawal of these claim rejections.

V. Claim Rejections Under 35 U.S.C. §112, First Paragraph, Enablement

The Final Action maintains the rejection of Claims 1-3 and 5-13 under 35 U.S.C. §112, first paragraph, as lacking enablement. *See* Final Action, page 6. More specifically, the Final Action asserts that the specification, "while being enabling for a method of use of a recombinant *Bacillus subtilis* having at least one heterologous *kerA* gene of *Bacillus licheniformis* inserted into *B. subtilis*' chromosome, does not reasonably provide enablement for *B.subtilis* or *B. licheniformis* integrant having any heterologous *kerA* gene inserted into its chromosome." Final Action, page 6. Applicants respectfully disagree.

The touchstone for enablement is whether one reasonably skilled in the art could make and use the invention from the disclosures in the patent application coupled with information known in the art without undue experimentation. *See* Manual of Patent Examining Procedure §2164.01 (citing *In re Wands*, 858 F.2d 731, 737). Applicants respectfully submit that one of ordinary skill in the art could make and/or use the recombinant *Bacillus* according to the methods recited in the amended claims without undue experimentation where *kerA* genes are known. Thus, any additional guidance if desired, for example, specific structural information regarding the *kerA* gene, can be found in the literature and is readily accessible to one skilled in the art.

Accordingly, at least in view of the foregoing, Applicants respectfully submit that the claim rejections under 35 U.S.C. §112, first paragraph, as lacking enablement, have been addressed, and Applicants respectfully request withdrawal of these claim rejections.

VI. Claim Rejections Under 35 U.S.C. §103

The Final Action maintains the rejection of Claims 1, 6, 7 and 9-13 under 35 U.S.C. §103 as being obvious over Lin et al. Nucleotide Sequence and Expression of *kerA*, the Gene Encoding a Keratinolytic Protease of *Bacillus licheniformis* PWD-1, Applied and Environmental Microbiology 61: 1469-1474 (1995) (hereinafter, "Lin et al.) in view of van der Laan et al. Cloning, Characterization and Multiple Chromosomal Integration of a *Bacillus* Alkaline Protease Gene, Applied and Environmental Microbiology 57: 901-909 (1991) (hereinafter, "van der Laan et al.") and the product of the Dutch Firm DSM. *See* Final Action, pages 7-8. Applicants respectfully disagree.

The previous Office Action stated that "Lin et al. do not teach the production of said **keratinase** in integrants of *Bacillus*." Office Action dated December 29, 2005 (hereinafter, the "December Action"), page 9. van der Laan et al. is directed to the cloning, characterization and multiple chromosomal integration of a *Bacillus* **high-alkaline protease gene**, in particular, a transformation and chromosomal integration system for ***Bacillus alcalophilus***. The requisite motivation to combine the cited references is lacking. The previous Office Action indicated that the "motivation" is taught by Lin et al. noting that keratinase is an enzyme that degrades feather from poultry waste, and thus, the enzyme is important for industrial and environmental reasons. *See* December Action, page 10. The Final Action states that "those skilled in the art are aware of the usefulness of keratinase for ten years as evidenced by numerous publications quoted by Applicants in the IDS." Final Action, page 9. Such comments attest to the utility of keratinase to which Applicants clearly recognize. However, the motivation to combine these references does not emanate from the combination of these references or the combination in conjunction with the recognized utility of the keratinase enzyme.

As noted in Applicants' specification and cited in the previous Office Action, "they [Applicants] used a modified protoplast method of Laan et al. for the integration of *kerA* gene into *Bacillus*." December Action, page 9. However, such "modification" did not arise from the combination of the cited references. The present invention is, instead, the result of the inventive concepts of the present investigators. Thus, it is **only** through impermissible hindsight that one is able to arrive at the present invention in view of the cited references. In the purview of at least ten years of publications directed to the usefulness of keratinase as

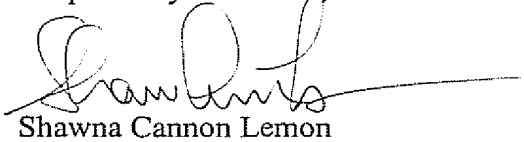
noted by the Examiner, none of the cited references provide adequate disclosure to challenge the novelty of the pending claims. Furthermore, Applicants respectfully submit that the cited references do not render the claims *prima facie* obvious.

Accordingly, at least in view of the foregoing, Applicants respectfully submit that the claim rejections under 35 U.S.C. §103 have been addressed, and Applicants respectfully request withdrawal of this rejection.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request that all outstanding objections and rejections to the claims be withdrawn and that a Notice of Allowance be issued in due course. The Examiner is invited and encouraged to contact the undersigned directly if such contact will expedite the prosecution of the pending claims to issue. In any event, any questions that the Examiner may have should be directed to the undersigned, who may be reached at (919) 854-1400.

Respectfully submitted,



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CERTIFICATION OF TRANSMISSION UNDER 37 CFR § 1.8

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